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EXAMINER	
LE, BRIAN Q	

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/044,558	FAN, JIAN	
	Examiner	Art Unit	
	Brian Q. Le	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,10,15-19,21 and 23-28* is/are rejected.

7)☒ Claim(s) *7, 9, 11-14, 20, and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RESPONSE TO PRE-APPEAL BRIEF

1. In view of the extensive Applicant's argument in the Pre-Appeal Brief has been fully considered. Examiner has reviewed prior art of previous Office Action in light of Applicant Argument. In response, the previous finalities of previous Office Action are withdrawn because the claims 26-28 have not been examined. Thus, new grounds of the Office Action are now presented, herein below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. U.S. Patent No. 6,160,913.

Regarding claim 1, Lee teaches a method to identify text-like pixels (character) from an image, the method (column 2, lines 27-33) comprising:

(a) providing an image;(FIG. 1, element 12) and

(b) classifying line segments (the process of correcting and merging half-tone class pixels into halftone line segments) of pixels (halftone pixel classification) (FIG. 4, element 402) within the image by edge-bounded averaging, the edge-bounded averaging including finding an average value (calculation of pixel average intensity) (column 6, line 32) of connected pixels within a

mask (pixels within a pixel window) (column 6, line 33) centered at location (i, j) (average pixel intensity value within pixel window centered about pixel position (i,j) as clearly defined in the original specification and the amended claim) (column 6, lines 30-40).

For claim 2, Lee further teaches the method further comprising:

(c) examining sub-blobs of pixels (the analysis of halftone by pixel run in pixel window) within the image (FIG. 12); and

(d) performing sub-blob connectivity analysis (perform analysis of halftone by the connectivity of pixels run in pixel window) (FIG. 12).

Referring to claim 3, Lee teaches the method further comprising:

(e) identifying and classifying edges of pixels within the image (column 2, lines 55-65);

(f) performing filling to further classify pixels within the image (the step of re-assigning, correcting and merging pixels into halftone line segments) (column 2, line 63 to column 3, lines 10).

(g) performing consistency analysis of pixels within the image (perform uniformity of pixel) (column 4, lines 54-67).

(h) performing pixel connectivity analysis of pixels within the image (the step of re-assigning, correcting and merging pixels into halftone line segments) (column 2, line 63 to column 3, lines 10 and FIG. 12); and

(i) identifying text pixels within the image (column 2, lines 30-33).

For claim 4, Lee teaches the method wherein the connected pixels within the mask are of the same of edges or non-edges (the classified edge pixels in a 7x7 pixel window) (column 2, lines 64-67).

For claim 6, Lee discloses the method further comprising smoothing the image (column 9, lines 5-20).

For claim 23-25, please refer back to claims 1-3 for the teaching and explanations.

Regarding claim 26, Lee teaches a method of processing a digital image (halftone image processing) (abstract), the method comprising:

Identifying (the process of correcting and merging half-tone class pixels into halftone line segments) a segment of connected pixels in the image (halftone line pixels comprises of connected pixels) (column 2, line 67 and column 3, lines 1-5);

Finding average values (calculate average pixel intensity value) (column 6, line32) of connected pixels of the same type (the gradient area within vicinity of an edge) (column 6, lines 25-27) in a neighborhood (pixel window) (column 6, lines 30-35) of the segment (edge segment) (column 3, line 1); and

Using the average values (column 2, lines 30-35) to classify the segment as text or non-text (Lee discloses the present invention comprises the calculation of average pixel intensity value is to classify image as objects (character which is text) or background (which is non-text) (column 2, lines 30-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee et al. U.S. Patent No. 6,160,913 and Kodaira et al. U.S 6,868,183 as applied to claim 1 above.

Regarding claim 5, Lee does not explicitly teach the method comprising performing color space conversion of the image. Kodaira teaches a method of processing text-like pixels (column 4, lines 58-65) comprises a color space conversion mean (column 16, lines 1-20). Modifying Lee's method of processing text-like pixels according to Kodaira would able to allow the color conversion capable from one color space to another. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Lee according to Kodaira.

6. Claims 8, 10, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee et al. U.S. Patent No. 6,160,913 and Hashimoto et al. U.S 6,987,045 as applied to claims 1-3 above.

Regarding claim 8, Lee teaches a method of pixels classification (halftone pixel reclassification) (FIG. 4 and column 6) and edge processing (column 2, lines 64-67). However, Lee does not explicitly teaches the method of classifying edges of pixels wherein pixels can be classified as non edge, white edge or black edge. Hashimoto teaches a method of processing text-like of the image (character edge processing) (abstract) wherein pixels are classified as non edge (column 11, lines 42-47). Modifying Lee's method of processing text-like pixels according to Hashimoto would able to classify pixels of image to more specific regions whether black edge, white edge or no edge for further processing. This would improve processing and therefore, it

would have been obvious to one of the ordinary skill in the art to modify Lee according to Hashimoto.

For claim 10, Hashimoto also teaches the method wherein classifying line segments o pixels starting from a first side of a line proceeding to a second side of the line identifying consecutive segments of pixels as non edge, white edge or black edge (column 4, lines 64-67 to column 5, lines 1-11).

As to claim 15, Lee discloses the method wherein step (h) performing pixel connectivity analysis of pixels within the image (halftone line merge) (FIG. 4, element 412) comprises:

Identifying aggregates of pixel having been identified as candidates for text, the aggregates being sub-blobs (halftone reclassification, gathering of black pixels in local map) (FIG. 4 and FIG. 5, element 512); and

Collecting statistics with respect to each sub-blob, wherein said statistics are selected from the group consisting of total number of pixels (Counting number of black pixels in the local map) (FIG. 5, element 512 and FIG. 8, element 608).

Regarding claim 16, Hashimoto further teaches the method wherein step (c) examining sub-blobs of pixels within the image comprises: examining each sub-blob to determine whether it is non text (the process of differentiate in gradation of target pixel and each of the eight adjacent pixels to determine non-edge which also is non text since Hashimoto teaches text's edge processing) (column 4, lines 64-67 to column 5, lines 1-11).

Regarding claim 17, please refer back to claims 10 and 16 for further teachings and explanations.

For claim 18, please refer back to claims 1-3 for further teachings and explanations.

7. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee et al. U.S. Patent No. 6,160,913 and Brooks et al. U.S 6,406,062 as applied to claim 18 above.

Regarding claim 19, Lee does not specifically teach outputting a two layer image representation compatible with PDF Reference 1.2. Brooks further teaches a method that use Adobe Photoshop to produce "layer" images as "pdf" file (PDF reference). Modifying Lee's method of processing text-like pixels according to Brooks would able to produce layered images using Adobe Photoshop Software. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Lee according to Brooks. Plus, the Examiner takes Official Notice that it is well known in the art that different PDF Reference Version can be use to output layers image representation.

For claim 21, please refer back to claim 19 for the explanation.

8. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. U.S. Patent No. 6,160,913.

For claim 27, Lee does not explicitly teach a processor for performing the method as claimed in 26. However, Background of The Invention, Lee discussed the art of digital image processing can be done by computerized processing (column 1, lines 15-20). Thus, it would have been obvious for one skilled in the art to utilize the computer/ processor to processing digital image as claimed in claim 26 to improve the speed of processing and automation in processing digital images. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Lee by using a computer/processor to process digital image.

Regarding claim 28, as discussed in claim 27, Lee also teaches a memory (line buffer) (FIG. 13) encoded with data for instructing (FIG. 15, section I and FIG. 16B) to perform the method of claim 26.

Allowable Subject Matter

9. Claims 7, 9, 11-14, 20, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONCLUSION

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BL
July 3, 2006

JINGGE WU
PRIMARY EXAMINER

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